4. A turbomachinery blade for a gas turbine engine fan comprising a plurality of blades mounted for rotation about a fan axis with neighboring blades forming passages for a working medium gas, wherein:

the blade has a configuration enabling the fan to rotate at speeds providing supersonic flow velocities in at least a portion of each passage causing the formation of a shock in the gas adjacent an inner wall of a case forming an outer boundary for the working medium gas flowing through the passages;

the blade has a leading edge with an intermediate region and a tip region beginning at an outward boundary of the intermediate region and extending to a tip end of the blade, the intermediate region being swept rearward at a sweep angle that does not decrease; and

the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of said intermediate region, to provide a sweep angle that causes the blade to intercept the shock.

5. The turbomachinery blade of claim 4, wherein throughout the tip region the sweep angle is less than the sweep angle at the outward boundary of the intermediate region.

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10. A blade for a gas turbine engine fan comprising a plurality of blades mounted for rotation within a case circumscribing the blades and forming an outer boundary for a working medium gas flowing through passages formed by neighboring blades, wherein:

the blade has a configuration enabling the fan to rotate at speeds providing supersonic flow velocities in at least a portion of each passage;

the blade has a leading edge with an intermediate region and a tip region beginning at an outward boundary of the intermediate region and extending to a tip end of the blade, the intermediate region having a sweep angle that does not decrease from an inward boundary of the intermediate region to the outward boundary of the intermediate region; and

throughout the tip region the sweep angle is less than the sweep angle at the outward boundary of the intermediate region.

11. The blade of claim 10, wherein the intermediate region is swept rearward and the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region.

12. The blade of claim 10, wherein the intermediate region is swept forward and the tip region is translated rearward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region.

15. The blade of any one of claims 10 to 14, wherein the inward boundary of the intermediate region is coincident with a root end of the blade.

16. The blade of claim 10, wherein:

the intermediate region is swept rearward and the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region; and

the leading edge of the blade has an inner region beginning at a root end of the blade and extending to the inward boundary of the intermediate region, the inner region being swept forward.

18. A blade for a gas turbine engine fan comprising a plurality of blades mounted for rotation within a case circumscribing the blades and forming an outer boundary for a working medium gas flowing through passages formed by neighboring blades, wherein:

the blade has a configuration enabling the fan to rotate at speeds providing supersonic flow velocities in at least a portion of each passage;

the blade has a leading edge with an intermediate region and a tip region beginning at an outward boundary of the intermediate region and extending to a tip end of the blade, the intermediate region being swept rearward at a sweep angle that does not decrease from an inward boundary of the intermediate region to the outward boundary of the intermediate region; and

the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of the rearwardly swept intermediate region.

20. Turbomachinery for a gas turbine engine, comprising a plurality of blades mounted for rotation within a case circumscribing the blades and forming an outer boundary for a working medium gas flowing through passages formed by neighboring blades, wherein:

each blade has a configuration enabling the turbomachinery to rotate at speeds providing supersonic working medium gas velocities at least in the vicinity of the passages proximate to the case;

each blade has a leading edge with a swept intermediate region and a swept tip region beginning at an outward boundary of

the intermediate region and extending to a tip end of the blade, the intermediate region of each blade having a sweep angle that does not decrease from an inward boundary of the intermediate region to the outward boundary of the intermediate region; and

throughout the tip region the sweep angle of each blade is less than the sweep angle at the outward boundary of the intermediate region.

21. The turbomachinery of claim 20, wherein the intermediate region of each blade is swept rearward and the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region.

23. The turbomachinery of claim 22, wherein the leading edge of each blade has an inner region beginning at a root end of the blade and extending to the inward boundary of the intermediate region, the inner region being swept forward.

24. The turbomachinery of claim 20, wherein the intermediate region of each blade is swept forward and the tip region is translated rearward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region.

27. A gas turbine engine fan comprising a plurality of identical blades, each blade being mounted for rotation within a case circumscribing the blades and having an inner wall forming an outer boundary for a working medium gas flowing through passages formed by neighboring blades, wherein:

each blade has a configuration enabling the fan to rotate at speeds providing supersonic working medium gas velocities in the vicinity of the passages proximate to the case;

each blade has a leading edge with an inner region, an intermediate region and a tip region, the inner region beginning at a root end of the blade and extending to an inward boundary of the intermediate region, and the tip region extending from an outward boundary of the intermediate region to a tip end of the blade; and

the inner region is swept forward, the intermediate region is swept rearward at a sweep angle that does not decrease, and the tip region is translated forward relative to a leading edge with the same sweep angle as the outward boundary of the intermediate region.

30. A blade for a gas turbine engine rotatable within a case at speeds providing supersonic flow over at least a

portion of the blade, wherein the blade has a leading edge with a rear swept middle region having a sweep angle that does not decrease throughout the middle region and ending at a tip region that is translated forward relative to a leading edge with the same sweep angle as the end of the middle region.

36. A blade for a gas turbine engine rotatable within a case at speeds providing supersonic flow over at least a portion of the blade, wherein the blade has a leading edge with a forward swept middle region having a sweep angle that does not decrease throughout the middle region and ending at a tip region that is translated rearward relative to a leading edge with the same sweep angle as the end of the middle region.

REMARKS

Claims 4, 5, 10-12, 15, 16, 18, 20, 21, 24, 27, 30 and 36 have been amended. Claims 1-41 remain in the application.

The applicants would like to express their gratitude for the courtesies extended to their representative at the interview of April 2, 2001. The remarks that follow incorporate the discussion at the interview.

Except as specifically noted below, the amendments to the claims are made solely to address the points raised in the